

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method for transporting files from a cable headend, comprising:

for each of the files:

transforming a file identifier of the file into a respective data identifier (DID);

~~transforming respective filenames of said files into respective file identifiers, each of said file identifiers comprising~~ determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel selected to transport said file;

determining a first identifier based on the DID; and

transmitting, from the headend via the communications channel, one or more packets associated with the file, each of the one or more packets including the PID and the first identifier, wherein said file identifiers are first identifier is adapted to enable receivers of said communications channels channel to selectively receive a file by processing the communications channel associated with the file one or more packets associated with the file among packets transported via the communications channel.

2. (original) The method of claim 1, wherein said communications channel transports an MPEG 2 bitstream.

3. (original) The method of claim 1, wherein said communications channel transports Digicipher II data packets.

4. (previously presented) The method of claim 1, wherein said communications channel transports Service Information (SI) data packets.

5. (currently amended) The method of claim 1, wherein, for each of said ~~filenames~~ files, said ~~transforming step includes generating a number~~ DID is generated with an approximately uniform probability distribution.

6. (currently amended) The method of ~~claim 5, wherein a first portion of the number is used as~~ claim 1, wherein the first identifier is a payload identifier.

7. (currently amended) The method of ~~claim 6, wherein a second portion of the number is used as~~ claim 1, wherein the first identifier is a multicast identifier.

8. (currently amended) The method of claim 7, further comprising:
detecting a collision condition in which ~~at least two packets are transmitted having the same multicast identifier, each having a respectively two packets, associated with different files having different filename~~ file identifiers associated therewith, have identical PIDs and identical first identifiers;

determining a non-colliding first identifier for one of the two packets;

transmitting information associating ~~one of the at least two packets~~ the file associated with the one of the two packets with ~~[[a]] the non-colliding multieast~~ first identifier; and

transmitting the one packet one or more packets, of the file associated with the one of the two packets, using the non-colliding multieast first identifier.

9. (currently amended) The method of claim 8, wherein the non-colliding multieast first identifier is formed by adding a constant to the ~~multieast~~ first identifier for which the collision condition is detected.

10. (currently amended) The method of claim 1, wherein the file identifier is a file name or a binary number.

11. (currently amended) The method of claim 1, wherein, for each of the ~~filenames~~ files, said transforming step comprises:

calculating the ~~file identifier~~ DID based on one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number formed from the respective ~~filename~~ file identifier.

12. (currently amended) The method of claim 11, wherein, for each of said ~~filenames~~ files, the associated PID is determined by:

(i) determining a PID index by the equation:

$$\text{PID index} = X \text{ modulo NPIDSON},$$

where PID index is an index into a table, X is a result of performing at least one XOR operation on two or more portions of the ~~one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number~~ DID, and NPIDSON is a ~~number of packet processors to which payload files are being sent~~ predetermined number;

(ii) performing a table lookup using the PID index as a lookup parameter; and

(iii) adding an offset to a value output by the table lookup to determine the PID.

13. (currently amended) The method of claim 11, further comprising transmitting a ~~packet identifier~~ PID usage bitmap that identifies which ~~packet identifiers~~ PIDs are being used to transmit payload data.

14. (currently amended) The method of ~~claim 11, further comprising claim 1,~~ wherein, for each of the files, determining the first identifier based on the DID comprises:

~~selecting at least one portion of the one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number; and~~

~~transmitting along with a unit of payload data a payload identifier comprising the selected portion~~

dividing the DID into at least two portions; and

performing one of:

performing an XOR operation on two of the at least two portions to determine the first identifier; or
concatenating at least two of the at least two portions to determine the first identifier.

15. (currently amended) The method of ~~claim 11, wherein the at least one packet is transmitted using a multicast identifier formed from at least one portion of the one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number~~ claim 1, wherein, for each of the files, the first identifier is formed by performing an XOR operation on two non-contiguous portions of the DID.

16. (currently amended) The method of ~~claim 15, wherein~~ claim 1, wherein, for each of the files, the first identifier is a the multicast identifier ~~[[is]]~~ formed by performing an XOR operation on two non-contiguous portions of the ~~one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number~~ DID, wherein the method further comprises:

for each of the files, determining a second identifier based on the DID of the file, wherein the second identifier is a payload identifier formed by concatenating at least two portions of the DID.

17. (currently amended) The method of claim 1, wherein ~~the payload data include~~ each of the files is transported using one of the group consisting of Moving Picture Experts Group (MPEG) 1 packets and MPEG 2 packets.

18. (currently amended) The method of claim 1,
wherein, for each ~~file identifier~~ file, the associated ~~PID~~ is calculated from ~~at least a portion of a cyclic redundancy code calculated from the filename associated with at least one packet of payload data to be transmitted~~ the first identifier is a multicast identifier determined by selecting a first portion of the DID, wherein the method further comprises:

~~transmitting the at least one packet of payload data to a packet processor that is identified by the PID~~

for each of the files, determining a second identifier based on the DID of the file, wherein the second identifier is a payload identifier determined by selecting a second portion of the DID.

19. (currently amended) A method for receiving a ~~desired packet associated with a bit sequence~~ file from a server, the file having a file identifier associated therewith, the method comprising the steps of:

(a) ~~calculating~~ determining a data identifier (DID) from the ~~bit sequence associated with the desired packet~~ file identifier of the file; and

(b) ~~using the data identifier to receive the packet identified by the data identifier~~

determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel used to transport said file;

determining a first identifier based on the DID; and

selectively receiving one or more packets associated with the file, among packets transported via the communications channel, using the PID and the first identifier.

20. (currently amended) The method of claim 19, wherein ~~step (a) includes calculating the data identifier~~ the DID is determined based on a common function that is also used by the server to calculate the ~~data identifier~~ DID when the server determines which ~~data identifier~~ DID to assign to the packet.

21. (currently amended) The method of ~~claim 20, wherein the data identifier is formed from~~ claim 19, wherein the DID is determined using one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number generated using the ~~bit sequence~~ file identifier as an input, the method further comprising:

selecting at least one portion of the data identifier as DID as a second identifier, wherein the second identifier is a payload identifier; and

detecting payload data having the payload identifier transmitted therewith as the desired data.

22. (currently amended) The method of claim ~~20~~, wherein the packet is ~~received using claim 19, wherein the first identifier is a multicast identifier, wherein the multicast identifier is formed from at least one portion of a one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number generated using the bit sequence as an input by performing an XOR operation on two non-contiguous portions of the DID.~~

23. (currently amended) The method of claim ~~[[22]]~~ 19, further comprising:
determining a second identifier based on the DID;

detecting a collision condition in which a received packet has a multicast first identifier that matches the ~~multicast first identifier generated using the bit sequence determined using the DID~~, but a ~~payload~~ second identifier associated with the received packet is different from the ~~selected portion of the data identifier~~ second identifier determined based on the DID;

~~receiving a transmission associating the one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number~~ information associating the DID with a non-conflicting multicast first identifier; and

receiving the ~~desired packet~~ one or more packets using the non-colliding multicast first identifier.

24. (currently amended) The method of claim 19, wherein ~~step (a) includes calculating a 64 bit number, of which a payload identifier is a portion~~ the DID is a 64-bit number, wherein the first identifier is a 16-bit number determined by selecting a 16-bit portion of the DID or by performing an XOR on two non-contiguous 16-bit portions of the DID.

25. (currently amended) A method for transmitting data, comprising the steps of:

[[a)] calculating a plurality of ~~packet identifiers~~ data identifiers (DIDs) based on respective ~~bit sequences~~ identifiers associated with respective sets of at least one packet;

[[b)] associating each set of at least one packet with the respective ~~packet identifier~~ DID calculated from the ~~bit sequence~~ identifier for that set of at least one packet; and

calculating a plurality of packet identifiers (PIDs) based on the respective DIDs calculated for the respective sets of at least one packet; and

(e) ~~transmitting to~~ transmitting, to a receiver associated with one of the plurality of ~~packet identifiers~~ PIDs, a list including a respective ~~data identifier~~ DID for each set of at least one packet associated with the same ~~packet identifier~~ PID as the receiver.

26. (currently amended) The method of claim 25, wherein ~~step (a) includes generating a number~~ said DID is generated with an approximately uniform distribution ~~using a filename as an input.~~

27. (currently amended) The method of claim 25, ~~wherein each packet has a multicast identifier that is calculated based on the bit sequence associated with the packet,~~ the method further comprising:

for each set of at least one packet:

determining a multicast identifier based on the DID associated with the set of at least one packet;

~~detecting a collision condition in which at least two packets are transmitted having two packets associated with different ones of the sets of at least one packet have the same multicast identifier, each of the at least two packets having a respectively different bit sequence associated therewith;~~

determining a non-colliding multicast identifier for one of the two packets;

transmitting information associating the set of at least one packet associated with the one of the at least two packets with [[a]] the non-colliding multicast identifier; and

transmitting ~~the one packet~~ one or more packets, of the set of at least one packet associated with the one of the two packets, using the non-colliding multicast identifier.

28. (currently amended) A method for receiving data, comprising the steps of:

(a) calculating a packet identifier (PID) based on ~~a bit sequence~~ an identifier associated with a desired set of at least one packet, the ~~packet identifier~~ PID being associated with a receiver of the set of at least one packet; and

(b) receiving a list associated with the ~~packet identifier~~ PID, the list containing a plurality of data identifiers (DIDs), each ~~data identifier~~ DID in the list corresponding to a respective set of at least one packet that is to be received using that ~~packet identifier~~ PID.

29. (currently amended) The method of claim 28, further comprising:

receiving a ~~packet identifier~~ PID usage bitmap that identifies which ~~packet identifiers~~ PIDs are being used to transmit payload packets; and

determining whether the desired set of at least one packet is available using the ~~packet identifier~~ PID usage bitmap and the calculated ~~packet identifier~~ PID for the desired set of at least one packet.

30. (currently amended) The method of claim 29, further comprising:

detecting a file-not-found condition if the calculated ~~packet identifier~~ PID for the desired set of at least one packet is identified as not being used to transmit data in the ~~packet identifier~~ PID usage bitmap.

31. (currently amended) The method of claim 29, further comprising:

detecting a file-not-found condition if the calculated ~~packet identifier~~ PID for the desired set of at least one packet is identified as being used to transmit data in the ~~packet identifier~~ PID usage bitmap, and the ~~data identifier~~ DID corresponding to the desired set of at least one packet is not included in the list containing the plurality of ~~data identifiers~~ DIDs for that receiver.

32. (currently amended) A system for transmitting a file from a sender to a receiver, the system comprising:

a sender storage medium for storing said file, said file having a corresponding file identifier;

a converter for converting the contents of said file into ~~a bit stream~~ one or more packets to be transmitted; and

a sender transformer ~~for providing a key based on said file identifier; for:~~
transforming the file identifier into a respective data identifier (DID);

determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel; and

determining a first identifier based on the DID;

wherein said converter incorporating said key into said bit stream is adapted to incorporate the PID and the first identifier into the one or more packets for transmission [[to]] toward said receiver via the communications channel.

33. (currently amended) The system of ~~claim 32~~ claim 32, wherein the system further comprises a receiver, wherein said receiver is configured to select said file by means of said data identifier adapted to determine the first identifier using the file identifier and is further adapted to use the first identifier to selectively receive one or more packets associated with the file among packets transported via the communications channel.

34. (currently amended) The system of claim 32, wherein the server transmits a ~~packet identifier~~ PID usage bitmap that identifies which ~~packet identifier is~~ PIDs are being used to transmit payload data.

35. (currently amended) The system of claim 32, wherein the system further comprises a receiver that includes:

a processor for calculating the ~~packet identifier~~ PID for a desired set of at least one packet using the same calculation used by the server to calculate the ~~packet identifier~~ PID for the at least one packet, and

the processor detects a file-not-found condition if the ~~packet identifier~~ PID for the desired at least one packet is not listed in the ~~packet identifier~~ a PID usage bitmap as being used to transmit payload data.

36. (currently amended) A system for receiving ~~data~~ a desired file from a provider, comprising:

a client processor ~~that calculates a payload identifier based on a bit sequence associated with a given set of at least one packet,~~ configured to:

transform a file identifier of a desired file into a respective data identifier (DID);

determine a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel;

determining a first identifier based on the DID; and

use at least the first identifier to select one or more packets associated with the desired file, from among packets transported via the communications channel;

wherein the client processor determines the DID, PID, and first identifier based on one or more common functions used by the provider to determine the DID, PID, and first identifier for the one or more packets before transmitting the one or more packets associated with the desired file via the communications channel.

~~the client processor using the payload identifier to receive the given set of at least one packet from a server.~~

37. (currently amended) The system of claim ~~[[35]]~~ 36, wherein the client processor generates ~~a number~~ the DID with an approximately uniform probability distribution, ~~and the payload identifier is at least a portion of the generated number.~~

38. (currently amended) The system of claim ~~[[37]]~~ 36, wherein ~~a second portion of the generated number is used as~~ the first identifier is a multicast identifier, wherein the client processor determines the first identifier by performing an XOR on at least two non-contiguous portions of the DID.

39. (currently amended) The system of claim 38, wherein the client ~~includes~~ processor is further configured to:

determine a second identifier based on the DID;

~~means for detecting~~ detect a collision condition in which a received packet has a ~~multicast~~ first identifier that matches the ~~multicast~~ first identifier ~~generated using the bit sequence determined by the client processor using the DID, but a payload second identifier associated with the received with the packet is different from the payload second identifier calculated determined by the client processor using the DID;~~

~~mean for receiving~~ receive information associating the ~~desired set of at least one packet~~ DID with a non-colliding ~~multicast~~ first identifier; and

~~mean for receiving~~ receive the ~~desired packet~~ one or more packets associated with the desired file using the non-colliding ~~multicast~~ first identifier.

40. (currently amended) The system of claim 36, wherein the ~~bit sequence is a file identifier~~ is a filename of the file or a binary number associated with the file.

41. (currently amended) The system of claim 36, wherein the ~~bit sequence is a filename and the client calculates the data identifier~~ client processor calculates the DID based on one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number formed from the filename file identifier.

42. (currently amended) A computer readable medium encoded with computer program code, wherein when the computer program code is executed by a server processor, the server processor performs a method for transmitting ~~a packet associated with a bit sequence~~ one or more packets of a file, the method comprising the steps of:

~~(a) — calculating~~ determining a data identifier (DID) based on the bit sequence a file identifier of the file;

~~(b) — assigning the data identifier to the packet; and~~ determining a packet identifier (PID) based on the DID;

~~(c) — transmitting said packet to a receiver using the data identifier~~ determining a first identifier based on the DID;

assigning said PID and said first identifier to each of said one or more packets; and

transmitting said one or more packets toward a receiver.

43. (original) A method of transmitting payload data from a headend to a television converter, comprising the steps of:

spinning a plurality of data units from the group consisting of packets and files without transmitting a directory of all of the data units being spun; and

calculating information used to spin the units of data by a common calculation that is used by the television converter to receive the units of data without a directory of all of the data units being spun.

44. (currently amended) In a system including at least one file storage medium, said file storage medium including at least one file to be transported from a file sender to a file receiver, wherein each of said at least one file to be transported has associated therewith a corresponding file identifier, a sender comprising:

a packetizer;

a transform;

a multiplexer;

at least one file manager communicating with said file storage medium, said packetizer and said transform such that ~~said files~~ each of said at least one file on said file storage medium ~~are~~ is provided to said packetizer and said corresponding ~~filenames~~ are at least one file identifier is provided to said transform;

said transform, for each of said at least one file, determining a data identifier (DID) based on the file identifier of the file, determining a packet identifier

(PID) based on the DID, determining a first identifier based on the DID, and providing the PID and the first identifier to the packetizer;

said packetizer, for each of said at least one file, providing at least one corresponding data packet comprising said file to said multiplexer;

~~said transform providing a packet identifier based upon said corresponding filename to said multiplexer;~~

~~for each file to be transported~~ said multiplexer, for each of said at least one file, providing a packetized bitstream including said ~~at least one~~ file to be transported, each packet of said bitstream including ~~said file identifier and~~ at least a portion of said file.

45. (currently amended) The system of claim 44 further including a data carousel in communication with said packetizer and said multiplexer, wherein said packetizer provides said packets to said data carousel based upon said corresponding ~~file identifier~~ PID.

46. (currently amended) In a system including at least one file storage medium including at least one file to be transported from a sender to a receiver, wherein each of said at least one file to be transported has associated therewith a corresponding file identifier, a receiver comprising:

at least one tunable filter;

a transform;

a packet processor; and

a processor programmed to utilize said at least one file to be transported;

said processor, for each of said at least one file, providing said ~~filename~~ file identifier of said ~~at least one~~ file to be utilized to said transform;

said transform, for each of said at least one file, determining a data identifier (DID) based on the file identifier of the file, determining a packet identifier (PID) based on the DID, and providing ~~a packet identifier corresponding to said at least one filename~~ the PID corresponding to said file to a tunable filter such that said tunable

filter selects packets comprising said file and provides said selected packets to ~~[[a]]~~ said
packet ~~processor~~, processor;

said packet processor providing said file to said processor.